



Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 4 (c) of the provisional agenda

Electric storage systems: transport provisions

Amendment to packing instruction P903 – subparagraph (2)

Transmitted by the expert from China*

Introduction

1. In 2019, Portable Rechargeable Battery Association (PRBA) submitted document ST/SG/AC.10/C.3/2019/60 to the fifty-sixth session of the Sub-Committee to clarify in packing instruction P903 (2) that the 12 kg means the gross mass of a cell or a battery. The proposal was adopted and included in twenty-second revised edition of Model Regulations.

2. At the present, most batteries employing a strong, impact resistance outer casing are heavier than 12 kg, and can be packed in accordance with P903 (2). However, the gross mass of cells employing a strong, impact resistance outer casing on market are mostly between 500 g and 3000 g, with very few cases exceeding 12 kg according to the relevant research. So, the gross mass of 12 kg in P903 (2) is meaningless for a cell.

3. In recent years, with the rapid development of electric vehicles and lithium battery energy storage industry, the lithium-ion cells employing a strong, impact resistance outer casing become more and more popular as they provide a strong support for the modular and mass production of lithium-ion batteries. Statistics show that cells employing a strong, impact resistance outer casing now account for more than eighty percent share of the total market. It is crucial to make packing instruction P903 (2) also applicable to these cells.

4. In addition, a cell employing a strong, impact resistance outer casing need not be packed with packagings conforming to the packing group II performance level because its outer casing can effectively protect it from impact or extrusion of the external environment during the transport. Gross mass of the cell is not the decisive factor whether it needs packing group II packagings. Thus, a more reasonable mass limit for cells in P903(2) can be chosen.

5. In the past, the definitions of "large cell" and "large battery" in the *Manual of Tests and Criteria* were both based on the aggregate lithium content of all anodes when fully charged. Since the fifth revised edition of the *Manual of Tests and Criteria*, the gross mass of a cell or a battery is gradually included as a standard to determine whether it is large cell/battery or not. According to 38.3.2.3 of the seventh revised edition of the *Manual of Tests*

* A/75/6 (Sect.20), para. 20.51

and Criteria, large cell means a cell with a gross mass of more than 500 g, and large battery means a lithium metal battery or lithium ion battery with a mass gross of more than 12 kg. The gross mass which is referenced in the definition of "large battery" is consistent with that specified in P903 (2). Thus, experts from China suggest amending the gross mass specified in P903 (2) for cells to 500 g, which is, on the one hand side, consistent with the definition of "large cell" and, on the other hand side, can meet the needs of the industry.

Proposal

6. Considering the transport situation for a large cell employing a strong, impact resistance outer casing and the harmonization of the definition of large cell in 38.3.2.3 of the *Manual of Tests and Criteria*, China proposes two options to amend in packing instruction P903 subparagraph (2) to read as follow (new text is underlined, deletions in ~~striketrough~~):

Option 1:

“In addition, for a cell with a gross mass of 500 g or more, or a battery with a gross mass of 12 kg or more employing a strong, impact resistant outer casing: ...”

Option 2:

“In addition, for a large cell or a large battery ~~with a gross mass of 12 kg or more~~ employing a strong, impact resistant outer casing: ...”
